

Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in this patent application:

Claims 1 to 29 (canceled).

30. (new) A machine for sterilizing stoppering parts for bottles, including plastic and metal stoppering parts, wherein the sterilizing machine is associated with a bottling line upstream of a screwing machine associated with the bottling line, wherein the sterilizing machine operates at the same rate as the screwing machine, and wherein the sterilizing machine comprises:

an inlet at a first end of the sterilizing machine, for receiving a plurality of unsterilized stoppering parts introduced into the sterilizing machine; and

an outlet at a second end of the sterilizing machine, wherein the second end of the sterilizing machine opposes the first end of the sterilizing machine, for discharging sterilized stoppering parts from the sterilizing machine;

wherein a path is defined for directing the stoppering parts through the sterilizing machine and between the inlet and the outlet, and wherein the defined path for the stoppering parts is a helical path.

31. (new) The machine of claim 30 wherein the sterilizing machine defines a longitudinal axis which extends through the sterilizing machine, and wherein the first end of the sterilizing machine opposes the second end of the sterilizing machine along the longitudinal axis defined by the sterilizing machine.

32. (new) The machine of claim 30 wherein the sterilizing machine is comprised of three successive and coaxial sections including a sterilizing section, a rinsing section and a drying section, wherein the helical path defines a longitudinal axis, and wherein the coaxial sections of the sterilizing machine are coaxial with the longitudinal axis of the helical path.

33. (new) The machine of claim 32 wherein the stoppering parts are in contact with a rotating member, and wherein friction is developed between the stoppering parts and the rotating member for setting the stoppering parts in motion along the helical path.

34. (new) The machine of claim 33 wherein the rotating member is a hollow cylindrical sleeve which rotates with respect to a helical slideway, wherein the helical slideway is secured to a stationary drum and wound around an exterior wall of the stationary drum, and wherein the helical slideway has a U-shaped profile which is open toward the hollow cylindrical sleeve and

which has a height shorter than a height associated with the stoppering parts so that friction between the rotating member and the stoppering parts in the helical slideway causes the stoppering parts to move along the helical slideway, forming a conveying system for setting the stoppering parts in motion.

35. (new) The machine of claim 34 wherein the helical slideway has a bottom in the sterilizing section which includes a plurality of holes for receiving a plurality of nozzles, and wherein the nozzles are situated inside the stationary drum for injecting a sterilizing liquid.

36. (new) The machine of claim 35 wherein the plurality of nozzles are situated in an upper part of the stationary drum.

37. (new) The machine of claim 35 wherein the stationary drum has a defined radius, and wherein the plurality of holes are oriented in a direction which is inclined with respect to the radius of the stationary drum.

38. (new) The machine of claim 35 wherein the sterilizing liquid is collected in a lower part of the stationary drum, within a suction cavity which is offset with respect to a vertical plane of symmetry of the stationary drum, and wherein the sterilizing liquid is offset by rotation of the hollow

cylindrical sleeve.

39. (new) The machine of claim 35 which further includes a barrier for preventing the sterilizing liquid from running over ends of the stationary drum.

40. (new) The machine of claim 35 which further includes a pipe for drawing the sterilizing liquid, a filter in communication with the pipe for receiving the sterilizing liquid and for filtering the sterilizing liquid received from the pipe, and a heater in communication with the filter for receiving the sterilizing liquid from the filter and for heating the sterilizing liquid received from the filter, wherein the sterilizing liquid received from the heater is then recycled.

41. (new) The machine of claim 34 wherein transitions between the sections are provided by arrangements of the helical slideway.

42. (new) The machine of claim 34 wherein a sterilizing liquid is injected into a pressure-equalizing chamber by a nozzle.

43. (new) The machine of claim 42 wherein the pressure-equalizing chamber is formed by a wall which is parallel to a wall defined by the stationary drum.

44. (new) The machine of claim 34 wherein an interior face of the rotating member has a groove for slidably receiving a central cap associated with the stoppering parts.

45. (new) The machine of claim 30 wherein a driving fluid is provided for setting the stoppering parts in motion along the helical path.

46. (new) The machine of claim 45 wherein the driving fluid is selected from the group of driving fluids consisting essentially of compressed air, pulsed filtered air and a sterilizing liquid.

47. (new) The machine of claim 45 which includes a stationary drum, a helical slideway secured to and wound on an exterior wall of the stationary drum, and a hollow and stationary cylindrical sleeve surrounding the helical slideway and the stationary drum, wherein the helical slideway has a sole, and a plurality of openings extending through the sole for injecting the driving fluid into the helical slideway, forming a conveying system in which the stoppering parts can travel.

48. (new) The machine of claim 47 wherein the helical slideway is defined by a profiled separation which is positioned and welded into a helical groove provided on the stationary drum.

49. (new) The machine of claim 48 wherein the sole is a flexible metal strip wound between portions of the separation and held by tension at ends of the flexible metal strip, resting on two shoulders of the separation.

50. (new) The machine of claim 45 which includes a plurality of modules, wherein the modules are assembled in series and closed at opposing ends.

51. (new) The machine of claim 50 wherein the plurality of modules are identical to one another.

52. (new) The machine of claim 50 which further includes a hopper at an outlet of each of the modules, for collecting rejections from the modules.

53. (new) The machine of claim 50 which further includes a stationary drum, a helical slideway secured to and wound on an exterior wall of the stationary drum, a hollow and stationary cylindrical sleeve surrounding the helical slideway and the stationary drum, and at least one slit provided in the cylindrical sleeve, forming an outlet in each of the modules for drawing the driving fluid into an annular manifold.

54. (new) The machine of claim 53 which further includes an inlet tube coupled with the outlet, for recycling the

driving fluid.

55. (new) The machine of claim 45 which includes a standard module having a plurality of turns, wherein a last of the turns has an upper part for performing a rinsing with air, and wherein front turns perform a sterilizing function.

56. (new) The machine of claim 55 wherein the standard module includes a sole in the front turns of the module, wherein a plurality of orifices are provided in the sole, wherein a plurality of liquid-injection nozzles pass through the plurality of orifices, and wherein the plurality of liquid-injection nozzles are oriented at a driving angle (β).

57. (new) The machine of claim 56 wherein one of the orifices is provided in a bottom part of each of the turns on a vertical plane of symmetry.

58. (new) The machine of claim 55 which further includes a stationary drum, a helical slideway secured to and wound on an exterior wall of the stationary drum, a hollow and stationary cylindrical sleeve surrounding the helical slideway and the stationary drum, and a cylinder coaxial with the cylindrical sleeve for defining a cylindrical discharge space.

59. (new) The machine of claim 58 wherein the cylindrical sleeve has oblong-shaped discharge holes.

60. (new) The machine of claim 55 wherein the module further includes an air inlet located inside the module, wherein the air inlet distributes air to at least one first air-injection nozzle for driving the stoppering parts, to at least one second air-injection nozzle for performing an internal rinsing of the stoppering parts, and to at least one third air-injection nozzle for performing an external rinsing of the stoppering parts.

61. (new) The machine of claim 30 wherein the sterilizing machine has a longitudinal axis, and wherein the longitudinal axis is arranged substantially vertically, for vertical operation of the sterilizing machine.

62. (new) The machine of claim 30 wherein the sterilizing machine has a longitudinal axis, and wherein the longitudinal axis is arranged substantially horizontally, for horizontal operation of the sterilizing machine.